

## SECTION 6. SOURCE CONTROL MEASURES

This section provides guidance on the selection and design of structural source control measures.

### 6.1. Introduction

Source Control BMPs reduce the potential for stormwater runoff and pollutants from coming into contact with one another. Source Control BMPs are defined as any administrative action, design of a structural facility, usage of alternative materials, and operation, maintenance, inspection, and compliance of an area to eliminate or reduce stormwater pollution. Each new development and significant redevelopment project is required to implement appropriate Source Control BMP(s) pursuant to Section 2.4.5 of the Model WQMP.

Applicable Source Control BMPs (which includes subcategories of routine non-structural BMPs, routine structural BMPs and BMPs for individual categories/project features) are required to be incorporated into all new development and significant redevelopment projects regardless of their priority, including those identified in an applicable regional or watershed program, unless they do not apply due to the project characteristics. California Stormwater Quality Association (CASQA) BMP Fact Sheet numbers are included in parentheses where applicable.

### 6.2. Non-Structural Measures

#### N1 Education for Property Owners, Tenants and Occupants

For developments with no Property Owners Association (POA) or with POAs of less than fifty (50) dwelling units, practical information materials will be provided to the first residents/occupants/tenants on general housekeeping practices that contribute to the protection of stormwater quality. These materials will be initially developed and provided to first residents/occupants/tenants by the developer. Thereafter such materials will be available through the Permittees' education program. Different materials for residential, office commercial, retail commercial, vehicle-related commercial and industrial uses will be developed.

For developments with POA and residential projects of more than fifty (50) dwelling units, project conditions of approval will require that the POA periodically provide environmental awareness education materials, made available by the municipalities, to all of its members. Among other things, these materials will describe the use of chemicals (including household type) that should be limited to the property, with no discharge of wastes via hosing or other direct discharge to gutters, catch basins and storm drains. Educational materials available from the County of Orange can be downloaded here:

<http://www.ocwatersheds.com/PublicEd/resources/default.aspx>

**N2 Activity Restrictions**

If a POA is formed, conditions, covenants and restrictions (CCRs) must be prepared by the developer for the purpose of surface water quality protection. An example would be not allowing car washing outside of established community car wash areas in multi-unit complexes. Alternatively, use restrictions may be developed by a building operator through lease terms, etc. These restrictions must be included in the Project WQMP.

**N3 (SC-73) Common Area Landscape Management**

Identify on-going landscape maintenance requirements that are consistent with those in the County Water Conservation Resolution (or city equivalent) that include fertilizer and/or pesticide usage consistent with Management Guidelines for Use of Fertilizers (**DAMP Section 5.5**). Statements regarding the specific applicable guidelines must be included in the Project WQMP.

**N4 BMP Maintenance**

The Project WQMP shall identify responsibility for implementation of each non-structural BMP and scheduled cleaning and/or maintenance of all structural BMP facilities.

**N5 Title 22 CCR Compliance**

Compliance with Title 22 of the California Code of Regulations (CCR) and relevant sections of the California Health & Safety Code regarding hazardous waste management is enforced by County Environmental Health on behalf of the State. The Project WQMP must describe how the development will comply with the applicable hazardous waste management section(s) of Title 22.

**N6 Local Water Quality Permit Compliance**

The Permittees, under the Water Quality Ordinance, may issue permits to ensure clean stormwater discharges from fuel dispensing areas and other areas of concern to public properties.

**N7 (SC-11) Spill Contingency Plan**

A Spill Contingency Plan is prepared by building operator or occupants for use by specified types of building or suite occupancies. The Spill Contingency Plan describes how the occupants will prepare for and respond to spills of hazardous materials. Plans typically describe stockpiling of cleanup materials, notification of responsible agencies, disposal of cleanup materials, documentation, etc.

**N8 Underground Storage Tank Compliance**

Compliance with State regulations dealing with underground storage tanks, enforced by County Environmental Health on behalf of State.

**N9 Hazardous Materials Disclosure Compliance**

Compliance with Permittee ordinances typically enforced by respective fire protection agencies for the management of hazardous materials. The Orange County, health care agencies, and/or other appropriate agencies (i.e., Department of Toxics Substances Control) are typically responsible for enforcing hazardous materials and hazardous waste handling and disposal regulations.

**N10 Uniform Fire Code Implementation**

Compliance with Article 80 of the Uniform Fire Code enforced by fire protection agency.

**N11 (SC-60) Common Area Litter Control**

For industrial/commercial developments and for developments with POAs, the owner/POA should be required to implement trash management and litter control procedures in the common areas aimed at reducing pollution of drainage water. The owner/POA may contract with their landscape maintenance firms to provide this service during regularly scheduled maintenance, which should consist of litter patrol, emptying of trash receptacles in common areas, and noting trash disposal violations by tenants/homeowners or businesses and reporting the violations to the owner/POA for investigation.

**N12 Employee Training**

Education program (see N1) as it would apply to future employees of individual businesses. Developer either prepares manual(s) for initial purchasers of business site or for development that is constructed for an unspecified use makes commitment on behalf of POA or future business owner to prepare. An example would be training on the proper storage and use of fertilizers and pesticides, or training on the implementation of hazardous spill contingency plans.

**N13 (SD-31) Housekeeping of Loading Docks**

Loading docks typically found at large retail and warehouse-type commercial and industrial facilities should be kept in a clean and orderly condition through a regular program of sweeping and litter control and immediate cleanup of spills and broken containers. Cleanup procedures should minimize or eliminate the use of water if plumed to the storm sewer. If wash water is used, it must be disposed of in an approved manner and not discharged to the storm drain system. If there are no other alternatives, discharge of non-stormwater flow to the sanitary sewer must be at an acceptable discharge point such as a cleanout, oil/water separator, grease interceptor, or industrial sewer connection. All sewer discharges shall be in accordance with the Orange County Sanitation District's Wastewater Discharge Regulations and/or Washwater Disposal Guidelines.

**N14 (SC-74) Common Area Catch Basin Inspection**

For industrial/commercial developments and for developments with privately maintained drainage systems, the owner is required to have at least 80 percent of drainage facilities inspected, cleaned and maintained on an annual basis with 100 percent of the facilities included in a two-year period. Cleaning should take place in the late summer/early fall prior to the start of the rainy season. Drainage facilities include catch basins (storm drain inlets) detention basins, retention basins, sediment basins, open drainage channels and lift stations. Records should be kept to document the annual maintenance.

**N15 (SC-43, SC-70) Street Sweeping Private Streets and Parking Lots**

Streets and parking lots are required to be swept prior to the storm season, in late summer or early fall, prior to the start of the rainy season or equivalent as required by the governing jurisdiction.

**N16 (SD-30, SC-20) Retail Gasoline Outlets**

Retail gasoline outlets (RGOs) are required to follow the guidelines of this TGD and Model WQMP and non-structural source control operations and maintenance BMPs shown in the CASQA Structural Source Control Fact Sheet SD-30, and Non-structural Source Control Fact Sheet (SC-20).

**Other Non-structural Measures for Public Agency Projects**

As required by the Model WQMP other non-structural measures shall be implemented and included in the Project WQMP as applicable for new public agency Priority Projects as described in the Municipal Activity fact sheets <http://www.ocwatersheds.com/MunicipalActivities.aspx>. These include BMPs FF-1 through FF-13 for Fixed Facilities and DF-1 for Drainage Facilities. These are listed in Section 6.4, below.

**6.3. Structural Measures**

The following measures are applicable to all project types. CASQA BMP Fact Sheet numbers are included in parentheses where applicable; these fact sheets provide further detail on these BMPs.

**S1 (SD-13) Provide Storm Drain System Stenciling and Signage**

Storm drain stencils are highly visible source control messages, typically placed directly adjacent to storm drain inlets. The stencils contain a brief statement that prohibits the dumping of improper materials into the municipal storm drain system. Graphical icons, either illustrating anti-dumping symbols or images of receiving water fauna, are effective supplements to the anti-dumping message. Stencils and signs alert the public to the destination of pollutants discharged into stormwater. The following requirements should be included in the project design and shown on the project plans:

1. Provide stenciling or labeling of all storm drain inlets and catch basins, constructed or modified, within the project area with prohibitive language (such as: "NO DUMPING-DRAINS TO OCEAN") and/or graphical icons to discourage illegal dumping.
2. Post signs and prohibitive language and/or graphical icons, which prohibit illegal dumping at public access points along channels and creeks within the project area.
3. Maintain legibility of stencils and signs.

See CASQA Stormwater Handbook BMP Fact Sheet SD-13 for additional information.

**S2 (SD-34) Design Outdoor Hazardous Material Storage Areas to Reduce Pollutant Introduction**

Improper storage of materials outdoors may increase the potential for toxic compounds, oil and grease, fuels, solvents, coolants, wastes, heavy metals, nutrients, suspended solids, and other pollutants to enter the municipal storm drain system. Where the plan of development includes outdoor areas for storage of hazardous materials that may contribute pollutants to the municipal storm drain system, or include transfer areas where incidental spills often occur, the following stormwater BMPs are required:

1. Hazardous materials with the potential to contaminate urban runoff shall either be: (1) placed in an enclosure such as, but not limited to, a cabinet, shed, or similar structure that prevents contact with storm water or spillage to the municipal storm drain system; or (2) protected by secondary containment structures (not double wall containers) such as berms, dikes, or curbs.
2. The storage area shall be paved and sufficiently impervious to contain leaks and spills.
3. The storage area shall have a roof or awning to minimize direct precipitation and collection of stormwater within the secondary containment area.
4. Any stormwater retained within the containment structure must not be discharged to the street or storm drain system.
5. Location(s) of installations of where these preventative measures will be employed must be included on the map or plans identifying BMPs.

See CASQA Stormwater Handbook Section 3.2.6 and BMP Fact Sheet SD-34 for additional information.

**S3 (SD-32) Design Trash Enclosures to Reduce Pollutant Introduction**

Design trash storage areas to reduce pollutant introduction. All trash container areas shall meet the following requirements (limited exclusion: detached residential homes):

1. Paved with an impervious surface, designed not to allow run-on from adjoining areas, designed to divert drainage from adjoining roofs and pavements diverted around the area, screened or walled to prevent off-site transport of trash; and
2. Provide solid roof or awning to prevent direct precipitation.

Connection of trash area drains to the municipal storm drain system is prohibited.

Potential conflicts with fire code and garbage hauling activities should be considered in implementing this source control.

See CASQA Stormwater Handbook Section 3.2.9 and BMP Fact Sheet SD-32 for additional information.

**S4 (SD-12) Use Efficient Irrigation Systems and Landscape Design**

Projects shall design the timing and application methods of irrigation water to minimize the runoff of excess irrigation water into the municipal storm drain system. (Limited exclusion: detached residential homes.) The following methods to reduce excessive irrigation runoff shall be considered, and incorporated on common areas of development and other areas where determined applicable and feasible by the Permittee:

1. Employing rain shutoff devices to prevent irrigation after precipitation.
2. Designing irrigation systems to each landscape area's specific water requirements.
3. Using flow reducers or shutoff valves triggered by a pressure drop to control water loss in the event of broken sprinkler heads or lines.
4. Implementing landscape plan consistent with County Water Conservation Resolution or city equivalent, which may include provision of water sensors, programmable irrigation times (for short cycles), etc.
5. The timing and application methods of irrigation water shall be designed to minimize the runoff of excess irrigation water into the municipal storm drain system.
6. Employing other comparable, equally effective, methods to reduce irrigation water runoff.
7. Group plants with similar water requirements in order to reduce excess irrigation runoff and promote surface filtration. Choose plants with low irrigation requirements (for example, native or drought tolerant species). Consider other design features, such as:

- Use mulches (such as wood chips or shredded wood products) in planter areas without ground cover to minimize sediment in runoff.
- Install appropriate plant materials for the location, in accordance with amount of sunlight and climate, and use native plant material where possible and/or as recommended by the landscape architect.
- Leave a vegetative barrier along the property boundary and interior watercourses, to act as a pollutant filter, where appropriate and feasible.
- Choose plants that minimize or eliminate the use of fertilizer or pesticides to sustain growth.

Irrigation practices shall comply with local and statewide ordinances related to irrigation efficiency.

### **S5            Protect Slopes and Channels**

Projects shall protect slopes and channels as described in **Section 3.4** of this TGD.

### **S6    (SD-31)        Loading Dock Areas**

Loading /unloading dock areas shall include the following:

1. Cover loading dock areas, or design drainage to preclude run-on and runoff, unless the material loaded and unloaded at the docks does not have potential to contribute to stormwater pollution, and this use is ensured for the life of the facility.
2. Direct connections to the municipal storm drain system from below grade loading docks (truck wells) or similar structures are prohibited. Stormwater can be discharged through a permitted connection to the storm drain system with a treatment control BMP applicable to the use.
3. Other comparable and equally effective features that prevent unpermitted discharges to the municipal storm drain system.
4. Housekeeping of loading docks shall be consistent with N13.

See CASQA Stormwater Handbook Section 3.2.8 for additional information.

### **S7    (SD-31)        Maintenance Bays**

Maintenance bays shall include the following:

1. Repair/maintenance bays shall be indoors; or, designed to preclude urban run-on and runoff in an equally effective manner.
2. Design a repair/maintenance bay drainage system to capture all wash water, leaks and spills. Provide impermeable berms, drop inlets, trench catch basins, or overflow containment structures around repair bays to prevent spilled materials and wash-down waters from entering the storm drain system. Connect drains to a sump for collection and disposal. Direct connection of the repair/maintenance bays to the municipal storm drain system is prohibited. If there are no other alternatives, discharge of non-stormwater flow to the sanitary sewer may be considered only if allowed by the local sewerage agency through permitted connection.

Other features which are comparable and equally effective that prevent discharges to the municipal storm drain system without appropriate permits.

See CASQA Stormwater Handbook Fact Sheet SD-31 for additional information.

### **S8 (SD-33) Vehicle Wash Areas**

Projects that include areas for washing /steam cleaning of vehicles shall use the following:

1. Self-contained or covered with a roof or overhang.
2. Equipped with a wash racks, and with the prior approval of the sewerage agency (Note: Discharge monitoring may be required by the sewerage agency).
3. Equipped with a clarifier or other pretreatment facility.
4. If there are no other alternatives, discharge of non-stormwater flow to the sanitary sewer may be considered only allowed by the local sewerage agency through permitted connection. Alternately, non-storm water discharges may require a separate NPDES permit in order to discharge to the MS4. Some local jurisdictions also have permitting systems in place for these situations.
5. Other features which are comparable and equally effective that prevent unpermitted discharges, to the municipal storm drain system.

See CASQA Stormwater Handbook Sections 3.2.7 and 3.2.10 and Fact Sheet SD-33 for additional information.

### **S9 (SD-36) Outdoor Processing Areas**

Outdoor process equipment operations, such as rock grinding or crushing, painting or coating, grinding or sanding, degreasing or parts cleaning, landfills, waste piles, and wastewater and solid waste handling, treatment, and disposal, and other operations determined to be a potential threat to water quality by the Permittee shall adhere to the following requirements.

1. Cover or enclose areas that would be the sources of pollutants; or, slope the area toward a sump that will provide infiltration or evaporation with no discharge; or, if there are no other alternatives, discharge of non-stormwater flow to the sanitary sewer may be considered only allowed by the local sewerage agency through permitted connection.
2. Grade or berm area to prevent run-on from surrounding areas.
3. Installation of storm drains in areas of equipment repair is prohibited.
4. Other features which are comparable or equally effective that prevent unpermitted discharges to the municipal storm drain system.
5. Where wet material processing occurs (e.g. Electroplating), secondary containment structures (not double wall containers) shall be provided to hold spills resulting from accidents, leaking tanks or equipment, or any other unplanned releases (Note: If these are plumbed to the sanitary sewer, the structures and plumbing shall be in accordance with Section 7.II - 8, Attachment D, and with the prior approval of the sewerage agency). Design of secondary containment structures shall be consistent with "Design of Outdoor Material Storage Areas to Reduce Pollutant Introduction".

Some of these land uses (e.g. landfills, waste piles, wastewater and solid waste handling, treatment and disposal) may be subject to other permits including Phase I Industrial Permits that may require additional BMPs.

See CASQA Stormwater Handbook Section 3.2.5 for additional information.

#### **S10                      Equipment Wash Areas**

Outdoor equipment/accessory washing and steam cleaning activities shall use the following:

1. Be self-contained or covered with a roof or overhang.
2. Design an equipment wash area drainage system to capture all wash water. Provide impermeable berms, drop inlets, trench catch basins, or overflow containment structures around equipment wash areas to prevent wash -down waters from entering the storm drain system. Connect drains to a sump for collection and disposal. Discharge from equipment wash areas to the municipal storm drain system is prohibited. If there are no other alternatives, discharge of non-stormwater flow to the sanitary sewer may be considered, but only when allowed by the local sewerage agency through a permitted connection.
3. Other comparable or equally effective features that prevent unpermitted discharges to the municipal storm drain system.

#### **S11      (SD-30)              Fueling Areas**

Fuel dispensing areas shall contain the following:

1. At a minimum, the fuel dispensing area must extend 6.5 feet (2.0 meters) from the corner of each fuel dispenser, or the length at which the hose and nozzle assembly may be operated plus 1 foot (0.3 meter), whichever is less.
2. The fuel dispensing area shall be paved with Portland cement concrete (or equivalent smooth impervious surface). The use of asphalt concrete shall be prohibited.
3. The fuel dispensing area shall have an appropriate slope (2% - 4%) to prevent ponding, and must be separated from the rest of the site by a grade break that prevents run-on of stormwater.
4. An overhanging roof structure or canopy shall be provided. The cover's minimum dimensions must be equal to or greater than the area of the fuel dispensing area in the first item above. The cover must not drain onto the fuel dispensing area and the downspouts must be routed to prevent drainage across the fueling area. The fueling area shall drain to the project's Treatment Control BMP(s) prior to discharging to the municipal storm drain system.

See CASQA Stormwater Handbook Section 3.2.11 and BMP Fact Sheet SD-30 for additional information.

### **S12 (SD-10) Site Design and Landscape Planning (Hillside Landscaping)**

Hillside areas that are disturbed by project development shall be landscaped with deep-rooted, drought tolerant plant species selected for erosion control, satisfactory to the local permitting authority.

### **S13 Wash Water Controls for Food Preparation Areas**

Food establishments (per State Health & Safety Code 27520) shall have either contained areas or sinks, each with sanitary sewer connections for disposal of wash waters containing kitchen and food wastes. If located outside, the contained areas or sinks shall also be structurally covered to prevent entry of stormwater. Adequate signs shall be provided and appropriately placed stating the prohibition of discharging washwater to the storm drain system.

### **S14 Community Car Wash Racks**

In complexes larger than 100 dwelling units where car washing is allowed, a designated car wash area that does not drain to a storm drain system shall be provided for common usage. Wash waters from this area may be directed to the sanitary sewer (with the prior approval of the sewerage agency); to an engineered infiltration system; or to an equally effective alternative. Pre-treatment may also be required.

#### 6.4. Municipal Non-Structural Source Control Measures

The following measures are applicable to fixed facility municipal projects such as maintenance yards, schools, and libraries. Generally, these controls are more applicable to municipal projects than the fact sheets contained in Section 6.2, however other structural and nonstructural controls described in Section 6.2 and 6.3 shall be used where applicable. The links below contain the most recent versions of the Fixed Facility fact sheets, which can also be found at <http://www.ocwatersheds.com/MunicipalActivities.aspx>.

- [FF-1, Bay/Harbor Activities](#)
- [FF-2, Building Maintenance and Repair](#)
- [FF-3 Equipment Maintenance and Repair](#)
- [FF-4, Fueling](#)
- [FF-5, Landscape Maintenance](#)
- [FF-6, Material Loading and Unloading](#)
- [FF-7, Material Storage, Handling, and Disposal](#)
- [FF-8, Minor Construction](#)
- [FF-9, Parking Lot Maintenance](#)
- [FF-10, Spill Prevention and Control](#)
- [FF-11, Vehicle and Equipment Cleaning](#)
- [FF-12, Vehicle and Equipment Storage](#)
- [FF-13, Waste Handling and Disposal](#)

## SECTION 7. OPERATION AND MAINTENANCE PLANNING

The sustained performance of BMPs over time depends on ongoing and proper maintenance. In order for this to occur, detailed operation and maintenance plans are needed that include specific maintenance activities and frequencies for each type of BMP. In addition, these should include indicators for assessing when “as needed” maintenance activities are required.

Requirements for operations and maintenance (O&M) planning are described in [Section 4.0 of the Model WQMP](#). Maintenance agreements are one of the available tools described in this section.

This section provides guidance for the components of an effective maintenance agreement and provides references to published BMP maintenance guidelines.

### 7.1. How to Develop Maintenance Agreements

Maintenance agreements can be an effective tool for ensuring long-term maintenance of on-site BMPs. The most important aspect of creating these maintenance agreements is to clearly define the responsibilities of each party entering into the agreement. Basic language that should be incorporated into an agreement includes the following:

#### 1. Performance of Routine Maintenance

Local governments often find it easier to have a property owner perform all maintenance according to the requirements of a Design Manual. Other communities require that property owners do aesthetic maintenance (i.e., mowing, vegetation removal) and implement Pollution Prevention Plans, but elect to perform structural maintenance and sediment removal themselves.

#### 2. Maintenance Schedules

Maintenance requirements may vary, but usually governments require that all BMP owners perform at least an annual inspection and document that the maintenance and repairs are performed. An annual report must then be submitted to the government, who will to perform an inspection of the facility at a frequency specified in the Permit.

#### 3. Inspection Requirements

Local governments may obligate themselves to perform an annual inspection of a BMP, or may choose to inspect when deemed necessary instead. Local governments may also wish to include language allowing maintenance requirements to be increased if deemed necessary to ensure proper functioning of the BMP.

#### 4. Access to BMPs

The agreement should grant permission to a local government or its authorized agent to enter onto property to inspect BMPs and in response to emergencies (i.e., flooding, etc.). If

deficiencies are noted, the government should then provide a copy of the inspection report to the property owner and provide a timeline for repair of these deficiencies.

### 5. Failure to Maintain

In the maintenance agreement, the government should repeat the steps available for addressing a failure to maintain situation. Language allowing access to BMPs cited as not properly maintained is essential, along with the right to charge any costs for repairs back to the property owner. The government may wish to include deadlines for repayment of maintenance costs, and provide for liens against property up to the cost of the maintenance plus interest. The relationship between failure to maintain BMPs and potential nuisance issues (vectors, etc.) should be considered in the development of maintenance agreements.

### 6. Recording of the Maintenance Agreement

An important aspect to the recording of the maintenance agreement is that the agreement be recorded into local deed records. This helps ensure that the maintenance agreement is bound to the property in perpetuity.

Finally, some communities elect to include easement requirements into their maintenance agreements. While easement agreements are often secured through a separate legal agreement, recording public access easements for maintenance in a maintenance agreement reinforces a local government's right to enter and inspect a BMP. Examples of maintenance agreements include several available on the web at <http://www.stormwatercenter.net/>

## 7.2. How to Develop BMP Maintenance Activities

This section provides general guidance for the development of BMP maintenance activities. The following three factors should be considered:

- What maintenance activities are needed based on BMP design features and operation?
- How frequently should this maintenance be performed, and what conditions should trigger these activities?
- Who are responsible for these activities?

Detailed descriptions of BMP maintenance activities relevant to Southern California are provided in the Los Angeles County Stormwater BMP Operations and Maintenance Manual : [http://dpw.lacounty.gov/DES/design\\_manuals/StormwaterBMPDesignandMaintenance.pdf](http://dpw.lacounty.gov/DES/design_manuals/StormwaterBMPDesignandMaintenance.pdf)

The use of other references are allowed, however care should be taken in the use of published references to ensure that recommendations are appropriate for the Southern California climate.